HEMOLYTIC UREMIC SYNDROME, POSTDIARRHEAL

Clinical Features: Hemolytic uremic syndrome (HUS) is characterized by the acute onset of microangiopathic hemolytic anemia, renal injury, and low platelet count. Thrombotic thrombocytopenic purpura (TTP) also is characterized by these features but can include central nervous system (CNS) involvement and fever and may have a more gradual onset. Most cases of HUS (but few cases of TTP) occur after an acute gastrointestinal illness (usually diarrheal). Some evidence has suggested that the use of antimicrobial therapy may precipitate complications like HUS.

Causative Agent: Shiga toxin-producing bacteria. *E. coli* O157:H7 causes an estimated 90% of HUS cases; *Shigella dysenteriae* type 1 may also cause HUS.

Mode of Transmission: HUS is not transmissible, although its causative agent may be transmitted via the fecal-oral route—susceptible individuals ingest food or liquids contaminated with human or animal feces. Outbreaks have been linked to animal contact, eating undercooked ground beef, consuming contaminated produce, and drinking contaminated water or unpasteurized juice. Person-to-person transmission may also occur, especially within daycare settings and nursing homes.

Incubation Period: Undefined. HUS is typically diagnosed a week or more after the onset of diarrhea

Period of Communicability: *N/A*

Public Health Significance: HUS is most commonly caused by *E. coli* O157:H7, a bacterium often associated with contaminated beef and food products. Monitoring this disease serves as a potential indicator to problems in meat, fruit, and/or vegetable processing. Risk for HUS may be lowered if *E. coli* O157:H7 enteritis patients are not treated with antimicrobial agents.

Reportable Disease in Kansas Since: 2000

Laboratory Criteria for Surveillance Purposes

- Anemia (acute onset) with microangiopathic changes (i.e., schistocytes, burr cells, or helmet cells) on peripheral blood smear, ***AND***

- Renal injury (acute onset) evidenced by either hematuria, proteinuria, or elevated creatinine level (i.e., greater than or equal to 1.0 mg/dL in a child aged less than 13 years or greater than or equal to 1.5 mg/dL in a person aged greater than or equal to 13 years, or greater than or equal to 50% increase over baseline)

Surveillance Case Definitions

- *Probable*:

    - An acute illness diagnosed as HUS or TTP that meets the laboratory criteria in a patient who does not have a clear history of acute or bloody diarrhea in preceding 3 weeks, ***OR***

    - An acute illness diagnosed as HUS or TTP, that a) has onset within 3 weeks after onset of an acute or bloody diarrhea and b) meets the laboratory criteria except that microangiopathic changes are not confirmed

- *Confirmed*: an acute illness diagnosed as HUS or TTP that both meets the laboratory criteria and began within 3 weeks after onset of an episode of acute or bloody diarrhea

Epidemiology and Trends

2005 Kansas Count: 2

	Rate per 100,000	*95% CI*
Kansas Rate	0.1	(0.0 – 0.2)
U.S. Rate (2004)	0.1	*NA*

Two cases of postdiarrheal hemolytic uremic syndrome were confirmed in Kansas in 2005. The causative agent was not isolated from either case.